

Describing Frequencies Animation Transcript

Animation: A green cartoon man and a yellow cartoon woman are standing facing forward. There are hills in the background.

Yellow woman: I live in Jonesville. In my town there were 200 homes burgled last year. I am worried about being burgled. If I move to Smithville, which only had 100 homes that were burgled last year, would I be safer?

Green man: You need to consider more than just the absolute frequency, you also need to consider the relative frequency.

Yellow woman: Why, what is the difference between the two?

Green man: An absolute frequency is simply a count of a value or characteristic. The counts of 200 and 100 homes that were burgled are known as absolute frequencies because they are the actual frequency counts of homes burgled. Let's have a look...

Animation: A bar chart appears over aerial view of streets and houses background. It is labelled "House Burglaries (last 12 months)". It shows that the bar labelled "Jonesville" indicates 200 burglaries while the bar labelled "Smithville" indicates 100 burglaries.

Green man: We need to consider the total number of homes in each town, and then calculate the relative frequency. A relative frequency describes the occurrence of an event (in this case the counts of homes burgled) in relation to the total number of observations (total number of homes in each town). How many homes are there in each town?

Animation: Original image of cartoon man and woman in front of hills reappears.

Yellow woman: In Jonesville there are 5,000 homes. In Smithville there are 1,000 homes.

Animation: A bar chart with two stacked columns representing total counts of homes and house burgled for Jonesville and Smithville appears over aerial view of streets and houses background. It is labelled "House Burglaries (last 12 months)".

The dark blue section of the first stacked column labelled Jonesville shows 200 homes burgled of the total 5000 homes. The 4800 homes not burgled are shown by the remaining light blue portion of the stacked columns.

The dark blue section of the second stacked column labelled Smithville shows 100 homes burgled of the total 1000 homes. The 900 homes not burgled are shown by the remaining light blue portion of the stacked columns.

Animation: Original image of cartoon man and woman in front of hills reappears.

Jonesville - The rate of homes burgled in Jonesville is 4 per 100

Smithville - The rate of homes burgled in Smithville is 10 per 100

Animation: Original image of cartoon man and woman in front of hills reappears.

Green man: We can now compare the two towns on a consistent basis in relation to the prevalence of houses that were burgled.

The table also presents the relative frequency of homes burgled in Jonesville and Smithville. This is shown as the proportion, percentage, ratio and rate of burglaries in each town in relation to the total number of homes in each town. These relative frequencies are all higher in Smithville.

Animation: Table disappears

Green man: We now have enough information to produce the different types of relative frequencies, such as rates, proportions, percentages and ratios.

Animation: Information appears across the screen:

Jonesville - The proportion of homes burgled in Jonesville is $(200 \div 5,000) = 0.04$

Smithville - The proportion of homes burgled in Smithville is $(100 \div 1,000) = 0.1$

Jonesville - The percentage of homes burgled in Jonesville is $(200 \div 5,000) \times 100 = 4\%$

Smithville - The percentage of homes burgled in Smithville is $(100 \div 1,000) \times 100 = 10\%$

Jonesville - The ratio of homes burgled to those not burgled in Jonesville is 200:4800 (or 1:24)

Smithville - The ratio of homes burgled to those not burgled in Smithville is 100:900 (or 1:9)

Jonesville - The rate of homes burgled in Jonesville is 4 per 100

Smithville - The rate of homes burgled in Smithville is 10 per 100

Green man: We can now compare the two towns on a consistent basis in relation to the prevalence of houses that were burgled.

Animation: A table appears summarising the absolute and relative frequencies for homes burgled in Jonesville and Smithville.

The table shows that Jonesville had an absolute frequency of 200 homes burgled, which was double Smithville's 100 homes burgled.

The table also presents the relative frequency of homes burgled in Jonesville and Smithville. This is shown as the proportion, percentage, ratio and rate of burglaries in each town in relation to the total number of homes in each town. These relative frequencies are all higher in Smithville.

Yellow woman: So, while the absolute frequency tells me that there were a greater number of homes burgled in Jonesville, the relative frequency tells me that for every 100 homes in Smithville there was a greater prevalence of home burglaries than for an equivalent number of homes in Jonesville.

Green man: Correct. That is why it is important to understand the difference between absolute and relative frequencies.

Animation: End.